

CLAIMS

1. A method of manufacturing a display device, comprising:

5 a first step of sequentially laminating a first metal film, a first oxide film, and an optical filter on a first substrate, attaching a first support medium to a surface of the optical filter by using a first peelable adhesive agent such that the first support medium faces the first substrate through the optical filter, and separating the first metal film from the first oxide film by a physical means;

10 a second step of forming a layer including a pixel on a second substrate; and

 a third step of attaching the first oxide film to a surface of the layer including the pixel of the second substrate by using a first adhesive material after the first and second steps, and removing the first peelable adhesive agent and the first support medium.

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2. The method of manufacturing the display device according to claim 1, further comprising a fourth step of attaching a third substrate to a surface of the optical filter by using a second adhesive material after the third step.

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3. The method of manufacturing the display device according to claim 1, wherein the first substrate and the second substrate are any of a quartz substrate, a ceramic substrate, a silicon substrate, a metal substrate, and a stainless substrate, while the third substrate is plastic, a polarizing plate, or a polarizing plate having a retardation plate.

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4. The method of manufacturing the display device according to claim 1 or claim 2, wherein the surface of the second substrate is attached with a plastic, a polarizing plate, or a polarizing plate having a retardation plate after the second or the third step.

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5. A method of manufacturing a display device, comprising:

a first step of sequentially laminating a first metal film, a first oxide film, and an optical filter on a first substrate, attaching a second substrate to a surface of the optical filter by using a first adhesive material such that the second substrate faces the first substrate through the optical filter, attaching a first support medium to a surface of the second substrate by using a first peelable adhesive agent, and separating the first metal film from the first oxide film by a physical means so as to form an optical filter;

a second step of forming a layer including a pixel on a third substrate; and

a third step of attaching the first oxide film to a surface of the layer including the pixel of the third substrate by using a second adhesive material after the first and second steps, and removing the first peelable adhesive agent and the first support medium.

6. A method of manufacturing a display device, comprising:

a first step of sequentially laminating a first metal film, a first oxide film, and an optical filter on a first substrate, attaching a first support medium to a surface of the optical filter by using a first peelable adhesive agent such that the first support medium faces the first substrate through the optical filter, separating the first metal film from the first oxide film by a physical means, attaching a second substrate to a surface of the first oxide film by using a first adhesive material, and removing the first support medium and the first peelable adhesive agent so as to form an optical film;

a second step of forming a layer including a pixel on a third substrate; and

a third step of attaching the optical filter to a surface of the layer including the pixel of the third substrate by using a second adhesive material after the first and second steps.

7. The method of manufacturing the display device according to claim 5 or claim 6, wherein the first substrate and the third substrate are any of a quartz substrate, a ceramic substrate, a silicon substrate, a metal substrate, and a stainless substrate, while the second substrate is plastic, a polarizing plate, or a polarizing plate having a

retardation plate.

8. The method of manufacturing the display device according to claim 5 or claim 6, wherein in the second step or the third step, a surface of the third substrate is
5 attached with plastic, a polarizing plate, or a polarizing plate having a retardation plate.

9. A method of manufacturing a display device, comprising:

a first step of sequentially laminating a first metal film, a first oxide film, and an optical filter on a first substrate, attaching a first support medium to a surface of the
10 optical filter by using a first peelable adhesive agent such that the first support medium faces the first substrate through the optical filter, and separating the first metal film from the first oxide film by a physical means;

a second step of sequentially laminating a second metal film, and a second oxide film on a second substrate, and forming a layer including a pixel on the second
15 oxide film; and

a third step of attaching the first oxide film to a surface of the layer including the pixel of the second substrate by using a first adhesive material after the first and second steps, separating the second metal film from the second oxide film by a physical means, attaching a third substrate to a surface of the second oxide film by
20 using a second adhesive material, and removing the first peelable adhesive agent and the first support medium.

10. The method of manufacturing the display device according to claim 9, further comprising a fourth step of attaching the third substrate to a surface of the
25 optical filter by using the second adhesive material after the third step.

11. The method of manufacturing the display device according to claim 9, wherein the first substrate and the second substrate are any of a quartz substrate, a ceramic substrate, a silicon substrate, a metal substrate, and a stainless substrate, while
30 the third substrate and fourth substrate are any of plastic, a polarizing plate, and a

polarizing plate having a retardation plate.

12. A method of manufacturing a display device, comprising:

5 a first step of sequentially laminating a first metal film, a first oxide film, and
an optical filter on a first substrate, attaching a second substrate to a surface of the
optical filter by using a first adhesive material such that the second substrate faces the
first substrate through the optical filter, attaching a first support medium to a surface of
the second substrate by using a first peelable adhesive agent, and separating the first
metal film from the first oxide film by a physical means so as to form an optical film;
10 a second step of sequentially laminating a second metal film, and a second
oxide film on a third substrate, and forming a layer including a pixel on the second
oxide film; and

a third step of attaching the first oxide film to a surface of the layer including
the pixel of the third substrate by using a second adhesive material after the first and
15 second steps, separating the second metal film from the second oxide film by a
physical means, attaching a fourth substrate to a surface of the second oxide film by
using a third adhesive material, and removing the first peelable adhesive agent and the
first support medium.

20 13. A method of manufacturing a display device, comprising:

a first step of sequentially laminating a first metal film, a first oxide film, and
an optical filter on a first substrate, attaching a first support medium to a surface of the
optical filter by using a first peelable adhesive agent such that the first support medium
faces the first substrate through the optical filter, and separating the first metal film
25 from the first oxide film by a physical means;

a second step of attaching a second substrate to a surface of the first oxide
film by using a first adhesive material, and removing the first support medium and the
first peelable adhesive agent so as to form an optical film;

a third step of sequentially laminating a second metal film, and a second oxide
30 film on a third substrate, and forming a layer including a pixel on the second oxide

film; and

a fourth step of attaching the optical filter to a surface of the layer including the pixel of the third substrate by using a second adhesive material after the first to third steps, separating the second metal film from the second oxide film by a physical means, and attaching a fourth substrate to a surface of the second oxide film by using a third adhesive material.

14. The method of manufacturing the display device according to claim 9, wherein the first substrate and the third substrate are any of a quartz substrate, a ceramic substrate, a silicon substrate, a metal substrate, and a stainless substrate, while the second substrate and fourth substrate are any of plastic, a polarizing plate, and a polarizing plate having a retardation plate.

15. The method of manufacturing the display device according to any one of claim 9, claim 12, and claim13, wherein a second metal oxide film is formed between the second metal film and the second oxide film simultaneously with forming the second metal film and the second oxide film.

16. The method of manufacturing the display device according to any one of claim 9, claim 12, and claim13, wherein the second oxide film is formed after oxidizing a surface of the second metal film to form the second metal oxide film.

17. The method of manufacturing the display device according to any one of claim 1, claim 5, claim 6, claim 9, claim 12, and claim13, wherein a first metal oxide film is formed between the first metal film and the first oxide film simultaneously with forming the first metal film and the first oxide film.

18. The method of manufacturing the display device according to any one of claim 1, claim 5, claim 6, claim 9, claim 12, and claim13, wherein the first oxide film is formed after oxidizing a surface of the first metal film to form the first metal oxide

film.

19. The method of manufacturing the display device according to any one of claim 5, claim 6, claim 12, and claim 13, wherein the optical film includes the second
5 substrate and the optical filter.

20. The method of manufacturing the display device according to any one of claim 1, claim 5, claim 6, claim 9, claim 12, and claim 13, wherein a liquid crystal material is filled between the layer including the pixel and the optical filter.

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21. The method of manufacturing the display device according to any one of claim 1, claim 5, claim 6, claim 9, claim 12, and claim 13, wherein a second pixel electrode is formed on the optical filter.

15 22. The method of manufacturing the display device according to any one of claim 1, claim 5, claim 6, claim 9, claim 12, and claim 13, wherein a semiconductor element and a pixel electrode connecting to the semiconductor element are formed on the second oxide film.

20 23. The method of manufacturing the display device according to any one of claim 1, claim 5, claim 6, claim 9, claim 12, and claim 13, wherein the semiconductor element is a TFT, an organic semiconductor transistor, a diode, or an MIM element.

24. The method of manufacturing the display device according to any one of
25 claim 1, claim 5, claim 6, claim 9, claim 12, and claim 13, wherein the optical filter is a color filter or a color conversion filter.

25. The method of manufacturing the display device according to any one of claim 1, claim 5, claim 6, claim 9, claim 12, and claim 13, wherein the first metal film
30 or the second metal film is formed of an element selected from titanium, aluminum,

tantalum, tungsten, molybdenum, copper, chromium, neodymium, iron, nickel, cobalt, ruthenium, rhodium, palladium, osmium, iridium; a single layer including an alloy material or a compound material containing the above-mentioned elements as its main constituent; or a lamination layer thereof.

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26. The method of manufacturing the display device according to any one of claim 1, claim 5, claim 6, claim 9, claim 12, and claim13,, wherein the first oxide film or the second oxide film is formed of silicon oxide, silicon oxynitride, or metal oxide.

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27. The method of manufacturing the display device according to any one of claim 1, claim 5, claim 6, claim 9, claim 12, and claim13, wherein the support medium is a glass substrate, a quartz substrate, a metal substrate, or a ceramic substrate.

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28. The method of manufacturing the display device according to any one of claim 1, claim 5, claim 6, claim 9, claim 12, and claim13, wherein the first peelable adhesive agent is a reactive peelable adhesive material, a thermal peelable adhesive material, a light peelable adhesive material, an anaerobic peelable adhesive material, or a member having adhesive layers made from one or more of the above adhesive materials on both surfaces thereof.

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29. The method of manufacturing the display device according to any one of claim 1, claim 5, claim 6, claim 9, claim 12, and claim13, wherein a first metal oxide film is formed between the first metal film and the first oxide film.

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30. The method of manufacturing the display device according to any one of claim 9, claim 12, and claim13, wherein a second metal oxide film is formed between the second metal film and the second oxide film.

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31. The method of manufacturing the display device according to any one of claim 1, claim 5, claim 6, claim 9, claim 12, and claim13, wherein after forming a

spacer on a surface of the layer including the pixel, the layer including the pixel is attached to the second substrate or the third substrate.

32. The method of manufacturing the display device according to any one of
5 claim 1, claim 5, claim 6, claim 9, claim 12, and claim13, wherein the display device is a liquid crystal display device, a light emitting display device, a digital micromirror device, a plasma display panel, a field emission display, and an electrophoretic display device.

10 33. An electronic appliance manufactured by the method of manufacturing the display device according to any one of claim 1, claim 5, claim 6, claim 9, claim 12, and claim13.

34. A television manufactured by the method of manufacturing the display
15 device according to any one of claim 1, claim 5, claim 6, claim 9, claim 12, and claim13.